

**great  
expectations  
with technology**

## **Levels of Technology Implementation (LoTi) Framework**

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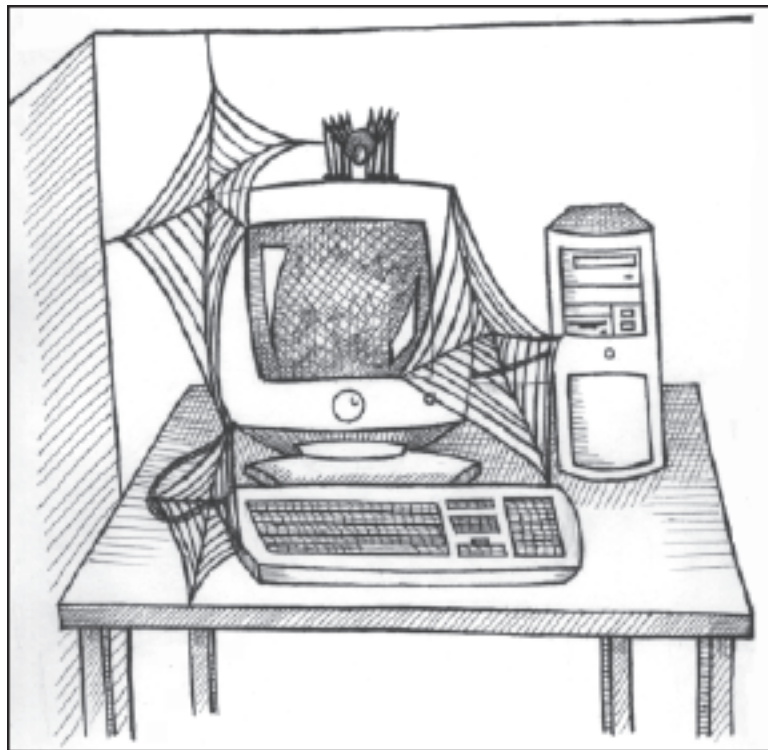
<b><i>Level 0</i></b>	<b><i>Non-use</i></b>
<b><i>Level 1</i></b>	<b><i>Awareness</i></b>
<b><i>Level 2</i></b>	<b><i>Exploration</i></b>
<b><i>Level 3</i></b>	<b><i>Infusion</i></b>
<b><i>Level 4a</i></b>	<b><i>Integration (Mechanical)</i></b>
<b><i>Level 4b</i></b>	<b><i>Integration (Routine)</i></b>
<b><i>Level 5</i></b>	<b><i>Expansion</i></b>
<b><i>Level 6</i></b>	<b><i>Refinement</i></b>

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## Levels of Technology Implementation (LoTi) Framework

### Level 0 - Non-use

A perceived lack of access to technology-based tools or a lack of time to pursue electronic technology implementation. Existing technology is predominately text-based (e.g., ditto sheets, chalkboard, overhead projector).



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## Levels of Technology Implementation (LoTi) Framework

### Level 1 - Awareness

The use of computers is generally one step removed from the classroom teacher (e.g., integrated learning system labs, special computer-based pull-out programs, computer literacy classes, central word processing labs). Computer-based applications have little or no relevance to the individual teacher's operational curriculum.



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## Levels of Technology Implementation (LoTi) Framework

### Level 2 - Exploration

Technology-based tools generally serve as a supplement to the existing instructional program (e.g., tutorials, educational games, simulations). The electronic technology is employed either as extension activities or as enrichment exercises to the instructional program and generally reinforce lower cognitive skill development (e.g., knowledge, comprehension, application).

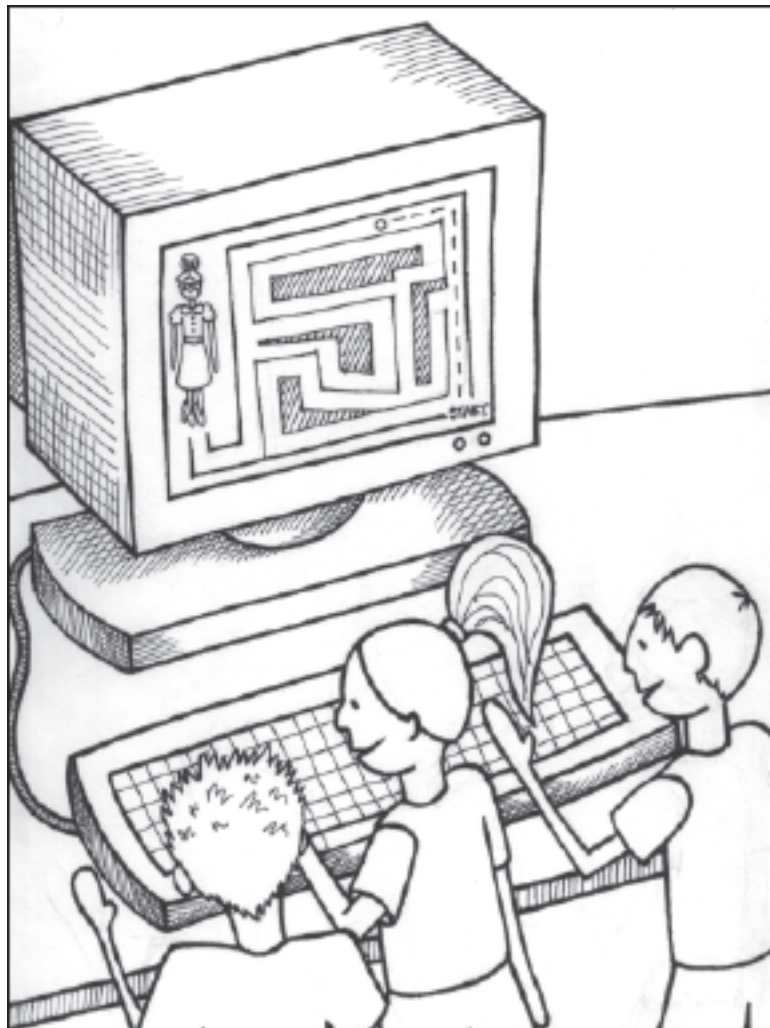


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## Levels of Technology Implementation (LoTi) Framework

### Level 3 - Infusion

Technology-based tools including databases, spreadsheet and graphing packages, multimedia and desktop publishing applications, and Internet use augment selected instructional events (e.g., science kit experiment using spreadsheets/graphs to analyze results, telecommunications activity involving data sharing among schools). Though the learning activity may or may not be perceived as authentic by the student, emphasis is, nonetheless, placed on higher levels of cognitive processing (e.g., analysis, synthesis, evaluation).



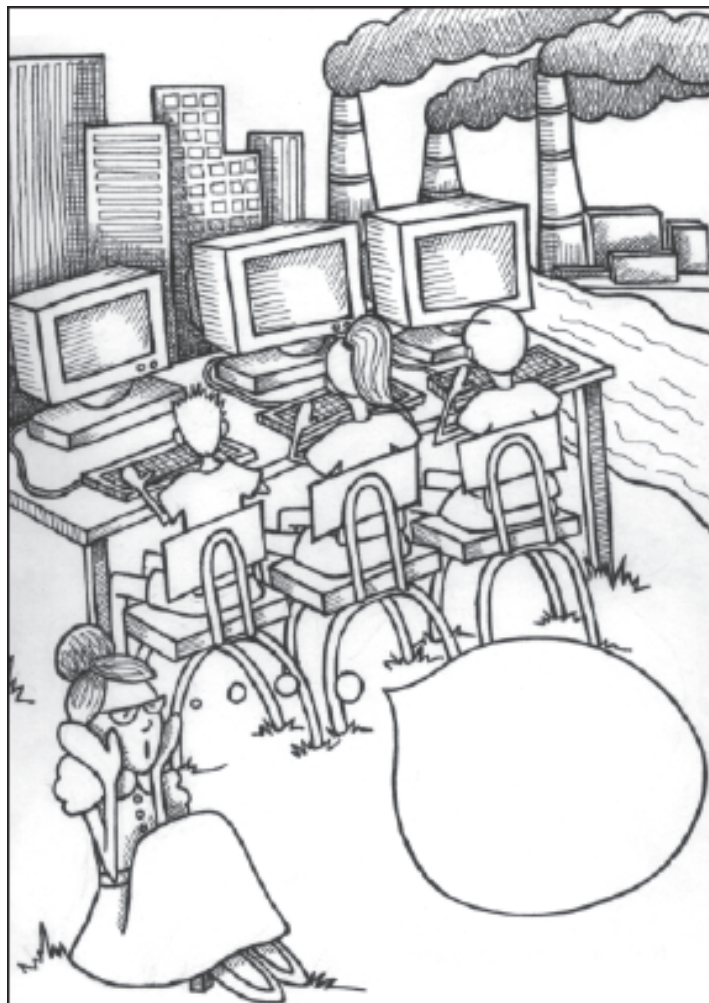


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## Levels of Technology Implementation (LoTi) Framework

### Level 4a - Integration (Mechanical)

Technology-based tools are integrated in a mechanical manner that provides rich context for students' understanding of the pertinent concepts, themes, and processes. Heavy reliance is placed on pre-packaged materials and outside interventions that aid the teacher in the daily operation of their instructional curriculum. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems perceived by the students as relating to an overall theme/concept. Emphasis is placed on student action and issues resolution that require higher levels of student cognitive processing.

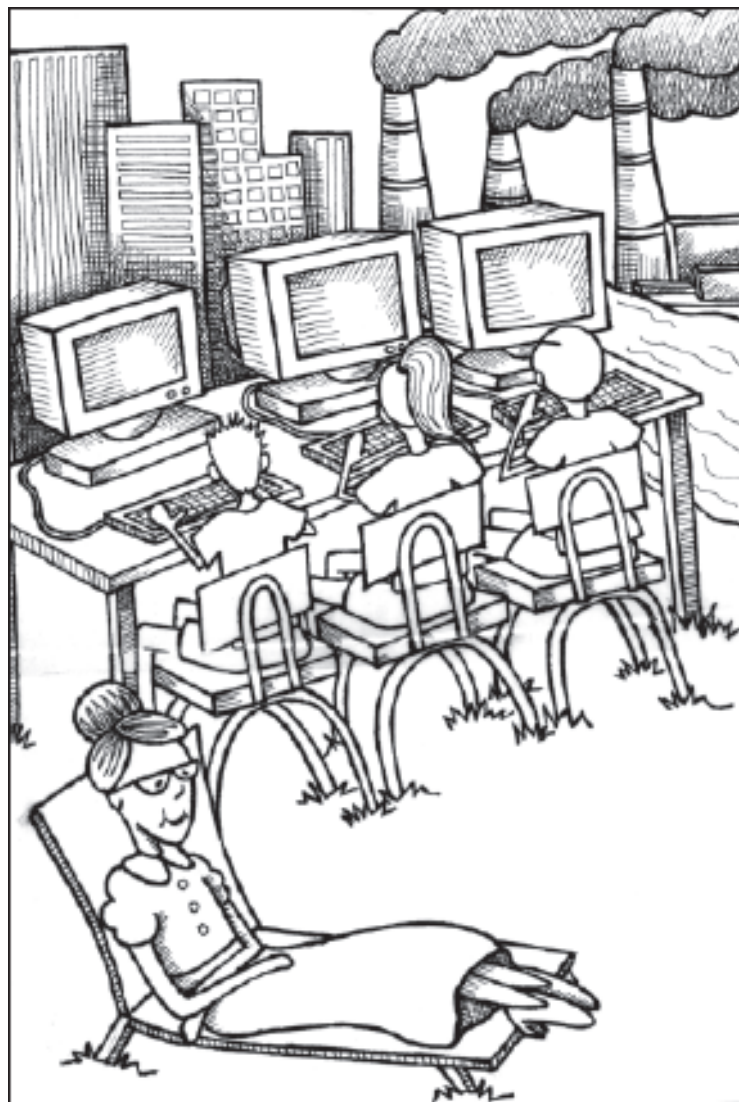


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## Levels of Technology Implementation (LoTi) Framework

### Level 4b - Integration (Routine)

Teachers can readily create Level 4 (Integrated units) with little intervention from outside resources. Technology-based tools are easily integrated in a routine manner that provides rich context for students' understanding of the pertinent concepts, themes, and processes. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.



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## Levels of Technology Implementation (LoTi) Framework

### Level 5 - Expansion

Technology access is extended beyond the classroom. Classroom teachers actively elicit technology applications and networking from business enterprises, governmental agencies (e.g., contacting NASA to establish a link to an orbiting space shuttle via Internet), research institutions, and universities to expand student experiences directed at problem-solving, issues resolution, and student involvement surrounding a major theme/concept.





## Levels of Technology Implementation (LoTi) Framework

### Level 6 - Refinement

Technology is perceived as a process, product (e.g., invention, patent, new software design), and tool toward students solving authentic problems related to an identified “real-world” problem or issue. Technology, in this context, provides a seamless medium for information queries, problem-solving, and/or product development. Students have ready access to and a complete understanding of a vast array of technology-based tools to accomplish any particular task.



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